

ABSTRACT OF THE DISCLOSURE

[0052] A condensing and collecting optical system includes a first reflector and second reflector. The first and second reflectors and includes a portion of an ellipsoid of revolution having two focal point and an optical axis. A source of electromagnetic radiation is placed at one of the focal points of the first reflector to produce radiation that converges at the second focal point of the first reflector. The second focal points of the reflectors coincide. The second reflector is positioned to receive the radiation after it passes through a second focal point of the second reflector and focuses the radiation toward a target positioned at the first focal point of the second reflector. To achieve maximum illumination at the target, the first and second reflectors are substantially of the same size and shape and positioned in optical symmetry with respect to one another so that radiation reflected from a surface portion of the first ellipsoidal reflector is thereafter reflected from a corresponding surface portion of the second ellipsoidal reflector to achieve unit magnification between the source and its focused image. The ellipsoid reflectors may include non-ellipsoidal portions or may be approximated by spherical or toroidal reflectors.